Electricity on the Farm

A Monthly Magazine for the Progressive Rural Family

JUNE, 1932

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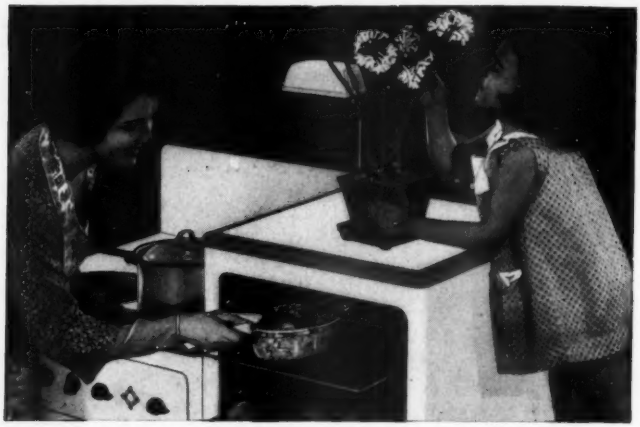
SWIFT AS ELECTRICITY—CLEAN AS ELECTRIC LIGHT



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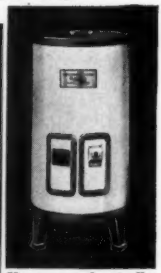
MODEL RA 28. *The Cambridge — Combination coal, wood and electric range. (Right)*



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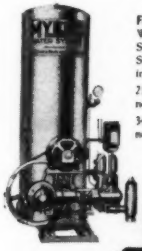

Fig. 8510—Shallow Well, Automatic, Self-Oiling Water Systems. Ready to install

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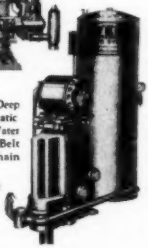

Fig. 2700 — Deep Well, Automatic Self-Oiling Water Systems V-Belt or Silent Chain drive

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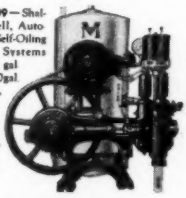

Fig. 2739 — Shallow Well, Automatic, Self-Oiling Water Systems with 12 gal tank 250gal capacity, now **$77.00.** 340 gal capacity, now **$82.00.**

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Electricity on the Farm

June, 1932
Vol. 5 No. 6

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The Most Popular Range
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ELECTRICITY ON THE FARM

JUNE, 1932

"He who knows not the way leading to the sea, should make the river his companion."
—PLAUTUS (Roman dramatist, 200 B. C.)

He who knows not the way to successful cooling of milk by electricity should make the refrigeration dealer his counsellor.

The electrical refrigerator in the dairy has proven itself to be the most dependable and efficient method of cooling milk. It is easy to handle, if properly designed, and of sufficient capacity. But if the refrigerator is too small, or if too little capacity is provided in the tanks, dissatisfaction may result. Or if the user is not fully familiar with the equipment, necessary adjustments may not be made from time to time, which will again result in inefficient service.

Fortunately, reputable manufacturers of such equipment appoint as dealers men who are capable of offering constructive suggestions to customers. They are able to advise the customer as to the size of equipment needed for any particular task. They insure electric milk coolers being installed by competent men; they are able to give prompt, efficient service at all times, being located within a reasonable distance of all points in the territory they serve. And in the case of an emergency, it is a mighty comforting thing to have within prompt call a man who not only knows the equipment thoroughly, but who has on hand replacement parts or materials needed in making repairs.

Sole dependence is usually placed upon an electric milk cooling installation once it is installed for protecting milk against deterioration, so that if an installation is out of service for any great length of time, serious loss will result to the user through spoiled milk and cream. No refrigerating equipment built is entirely trouble-proof as long as the human element must enter into its maintenance, and for that reason an installation can be expected to give the most satisfactory service only when backed up by a capable dealer who is always at call and within reasonable distance.

True, a few dollars might be saved in purchasing milk cooling equipment when the purchase price does not include dealer service, but it is an expensive investment in the long run to install equipment which has not the assurance of uninterrupted operation made possible by periodic inspection and speedy repair.

What has been said of the service rendered by dealers of refrigerating apparatus applies equally to other lines. The dealer of electrically operated equipment should be considered more than just a salesman, for he serves as a capable advisor and service man as well.

Mrs. Ellis Lichtenwalner placed her range close to her work table.

The Swallows Nest in the KITCHEN CHIMNEY

By E. R. MEACHAM

"GOOD morning, Mrs. Hanson," I said, getting out of my car. "Isn't this a gorgeous June day?"

"Yes," she answered dubiously. "It is lovely, but the sun's beginning to get hot. When I remember the scorching days we had last summer, it doesn't seem as if I could stand another such season in my hot kitchen."

She sighed mournfully and put down the sunbonnet she had been fanning herself with.

"Why your kitchen is on the north side of the house. I shouldn't think it would be so hot if you didn't have a fire in it."

"If I didn't have a fire in it," snorted Mrs. Hanson indignantly. "No, of course it wouldn't be so hot if it didn't have a fire in it—but it has. Lewis has no patience with meals I cook with a can opener. For my part, I'd rather live on pick-up meals and cold lunches than broil myself over the kitchen range. You know he works hard, early and late, and he expects at least two good cooked meals a day. And when he has any outside help, of course, I have to do a little extra for them. There is no worse gossip about a woman's cooking and the kind of table she sets than a hired man or a threshing crew."

"That's right, but some of the best meals a lot of these fellows eat are cooked in cool kitchens without any fire."

"Without any fire?" Mrs. Hanson shook her head unbelievingly. "If they had a good mess of victuals, I guess there was a fire around somewhere. Oh, I've used a fireless cooker for some things, but it never took the place of a stove, and it only put building the fire ahead a few hours anyhow. You have to have a big fire to get the food and soap stones hot. And how can a woman boil potatoes, fry ham and eggs, or do a big baking in a fireless cooker?"

Mrs. Hanson was partly right. Though there has not been a fire in our kitchen for more than five years, it takes a fire to cook our meals just the same. Only our fire is under the boiler of a power house a hundred miles away.

It is a terrible fire, so blistering hot that no stoker could stand before it to shovel coal into the roaring volcano of the furnace. In-

stead, the coal, ground as fine as flour, is blown into the fire box with a blast of air for draft, and burns instantly like a jet of oil. Instead of ashes, the residue from the coal melts and forms a white hot liquid slag which the fireman draw off through little vent holes at the ends of the furnace. When cool, it looks like lava or black glass.

The heat of that boiler room never reaches our kitchen, but the electricity generated there comes over the wires with the speed of light to bake our bread or boil our breakfast eggs.

But a fire is not always necessary. When the electric current is produced by water power, it seems even more miraculous. Could your grandmother imagine that cold water would ever supply the heat to bake biscuits in your kitchen? And that the heat would do the cooking without making any noticeable difference in the temperature of the room?

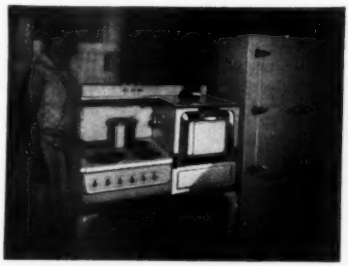
That is the cooking without a fire that would keep Mrs. Hanson's kitchen cool.

Just a few people in the power house tend the fire for a thousand kitchen stoves. They do a lot for us men. As long as they will keep up the fire, we need no longer cut, nor hand saw, nor split the wood for cooking. Plenty of farmers can make good use of the time they save. They can give the livestock better care in winter; they can put more time in the fields in summer. They can get at the chores earlier in the morning because there are no fires to build. They escape the annoyance of taking down and putting up the stove pipe; they do not even have to clean the kitchen chimney. But there is never any danger that it will set the house or barn or stacks afire some windy day when everything is dry as tinder.

Some Advantages

These electric wires furnish plenty of heat for the cooking, too; make no mistake about that. The difference between electric heat and the heat from the fuels we have been accustomed to lies in the fact that you can use electricity exactly where and when you need it. It can be shut up tight without any holes for ventilation or drafts; it can be started or stopped instantly; it can be regulated to control the temperature right down to a degree.

The method of producing heat from electricity is really very simple. When current



Above: Very little heat escapes from the range to add to the work of the refrigerator, says Mrs. Alfred Madsen, Florence, Nebraska.

Right: Mrs. Barclay of Blackfoot, Idaho, has used an electric range for a good many years.

The electric range fits conveniently into any kitchen and helps to keep it clean and dainty.

flows through some kinds of wire, the wire gets hot. On a lamp bulb it gets white hot and gives off light as well as some heat. In an electric range the wires are in the oven and in burners on the cooking top. They get a bright red hot, much hotter than the top of a coal or a wood stove, so it takes a very brisk fire to equal them for quick cooking. In a heating pad, a chick brooder, or an electric hot bed, the wires are only warm.

The engineers who design a range determine just how much heat each burner will deliver when turned on *High* or *Medium* or *Low, and* then they mount those heating elements on blocks of insulating material or polished reflectors so that the heat is directed right against the bottoms of the pans or kettles or shut up tight in a thick-walled oven.

There is plenty of heat where you need it and very little anywhere else.

One manufacturer claims that baking bread in his range will not wilt a vase of flowers set on top of the oven. I have never seen it tried, but I do not doubt it, for I know that when our oven is first turned on, and even after it gets hot enough to bake bread or roast a chicken, it still feels cool on top. I do not mean that it is not hot or only warm; it actually feels cool to the touch like a table top or any other porcelain enameled surface.

Little Heat Escapes

The cooking top of our range is also white enamel. In checking up on the exact reason why our kitchen stays cool, I found that I could lay my bare hand right flat on the top of the stove within an inch of a kettle of water that was boiling merrily. If the cooking utensil covers the burner, very little heat gets away.

Electric heat is as clean as sunlight. In fact, it is very much like sunlight. It takes nothing out of the air, and it adds nothing to the air. The only change is a change of temperature.

The old saying "Where there's smoke, there must be fire" is quite literally true when reversed. "Where there's fire, there must be smoke"—whether you can see it or not. And you can see the effect of it soon enough on walls and curtains. But electricity for fuel helps to maintain clean walls and woodwork, crisply fresh curtains, and a comfortable, healthful atmosphere free from fumes.

Mrs. Wm. E. Travers of Rhinebeck, N. Y., has used an electric range two years and she writes, "Our pots and pans and kitchen walls never accumulate any soot as they did with our old method of cooking."

Housekeeping Made Easy

Even a man can see that freedom from grime and soot on dishes, hands, clothes and dish towels, as well as the walls and draperies, makes housekeeping a quicker, easier, and pleasanter job.

"But," someone objects, "I never could wait for electricity to cook for my big family; they're hearty eaters and they want their meals on time. I'm afraid an electric range would be an impractical toy for my cooking."

Everyone remembers that the early electric stoves were slow,

you see; no one recalls that the first automobiles were, too. But in the modern car, and in the modern range, you can get all the speed and capacity you need.

Miss Howlett, Massachusetts, a farmer's daughter running a tearoom on the shore of a lake near their farm, finds her stove big enough and fast enough for the tearoom crowds.

Has No Equal

"I do not think there is anything that can equal the electric range for baking," she writes. 'In fact, I could not do what I am doing with any other method. It is easy to bake forty loaves of bread over the weekend.

And over the state line in New York, Mrs. S. L. Cassels bakes mammoth turkeys in her electric oven.

"My range was installed the Monday before Thanksgiving," she says. "Of course, I was very anxious to try it out. I started in and cooked my Thanksgiving dinner with great ease and not a bit of worry. The oven stayed at one temperature, so my eighteen pound turkey roasted to perfection."

And Mrs. Florence R. Lichtenwalner, the wife of a Master Farmer in Pennsylvania, goes at it from another angle to measure the speed of electric cooking.

"So many people overlook the speed of electric cooking. With any other type of stove, could I walk right up to my range, turn on the switch, and start my meal cooking? In the case of a wood stove, I might have to carry the wood in from the woodhouse, start my fire, and wait till the stove was ready to do any cooking. The same things holds true in a coal range. If I had my fire built already, I would have to fool around with draft and dampers, and then wait for the fire to come up.

"This is not so with electric cooking. A turn of the switch puts my range in operation immediately without much waiting for results. There is no more worry or constant attention to dampers. Outside elements, such as windy days, no longer affect the draft, and thus my cooking and baking."

With her dinner in the oven, Mrs. Herman Zinn can spend the whole morning in the garden.

Another range and refrigerator working in harmony in Mrs. Frank Schonger's kitchen, Kerharkan, N. Y.

No one would get very far telling Mrs. Lichtenwalner that electric cooking is slow, would they? She knows better.

This fuel of kilowatts, then, is fast, clean, and comfortable to work with. The next characteristic, one that sets electric cooking in a class by itself apart from all other fuels used on the farm, is its easy and accurate control—even automatic control. This feature is, of course, entirely different from anything possible with wood or coal. A fire of either of these fuels tends to change continually. It is either dying down as the fuel is burned, or cooled and checked by the addition of fresh fuel, or increasing as more of the fuel catches fire. But after the first few seconds that an electric element is turned on, it gives out a steady and unchanging heat, hour after hour, if necessary without any further attention.

Clock Control

This makes it easy for a clock to run the electric range. Just as an alarm clock is set to ring at a certain time, the stove clock is set to turn on the current instead of ringing a bell. And to make the job complete, such a clock can also be set to turn the current off. A clock could be wired to turn on the heating units on the cooking top, or a percolator plugged into the convenience outlet of the range, too, but as a matter of fact, it is generally used only on the oven.

Temperature Regulation

To keep the oven from getting too hot, most modern electric ranges have a temperature control. This is just a good thermostat that opens a switch if the temperature in the oven goes above a certain degree, and turns on the heat again, if the oven begins to cool a little. On the outside there is a dial or wheel by which the thermostat can be set to maintain the proper temperature for different kinds of baking—hot for pie crust or biscuits, medium for a big turkey, and very slow indeed for macaroni and cheese.

Women find plenty of things to do when the kitchen stove is not tied to their apron strings all the time.

Mrs. Herman Zinn of Topeka, Kansas, spends part of her new found leisure with flowers and a garden.

An Achievement Supreme

"To me an electric range is the ultimate end, the achievement supreme in modern cooking," she says. "It is a far cry from the old fireplace where my grandmother used to brush away the ashes and bake corn pone on the hot stones.

"Now, by pushing a button or turning a knob, I have clean red hot heat or a slow steady simmer, as I will, any time.

"Oven cooking saves time and worry. I can cook an entire meal, meat, vegetables, pudding or custards, with the same heat, and very often prepare the meal following with the retained heat. After putting my meal in the oven, I set the alarm and the oven temperature, turn the switches and go out and spend the entire morning in my garden and flowers. When I come in at noon, my meal is ready to serve."

Stoves change with the times,

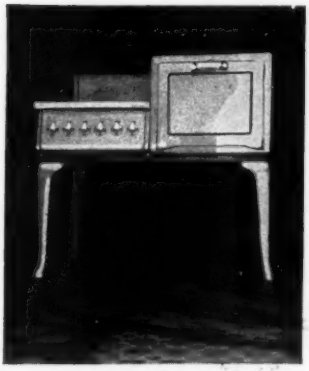
and it looks to me as though women were pretty busy changing with them. All my life we've had housecleaning week, spells of spring sewing, and sprees of canning and sauerkraut and sausage making. But never before have I heard of farm groups who planned a week of parties with something going on every day.

They do, though—Mrs. Gifford Hull Hallock of Milton, New York, says so, and she tells us how she manages a family, a house, and a party a day, all at the same time, too.

Oven Prepared Meals Served on Time

"I have a fairly good sized family that depends entirely upon me as a meal getter and demands those meals on time. Even in my daily absences from home last week, they could have no ground for complaint. With my electric range in the kitchen, a well-balanced, well-cooked meal is ready to serve, and punctually. We can all sit down happily without any discussion as to whether 'a woman's place is in the home.' I even feel at liberty to be absent at meal time if need be because I know my automatic oven has been at work, and that any other member of the household can place the cooked meal on the table.

Mrs. George Gast, Lenaxa, Kansas, bakes big brown loaves in her electric oven.



This range fits neatly into a small alcove.

"Then, too, my baking and cooking is so much more accurate. With the other fuel, it was always a matter of luck as to the results. I can depend on this range to turn out savory, thoroughly cooked food and better cake and bread. I am every day reminded of its convenience and of my release through it from uncertainty and drudgery."

Worth Its Cost

Of course, I do not have to get the meals, but I am an enthusiastic consumer of meals such as these women describe, and it does seem to me that electric cooking should be worth whatever it costs. As the man who pays the bills in a home where there is no other stove, I look on it as a bargain. There are four of us, all grown up, but young enough to have good appetites. To be sure we do not eat as much for breakfast as we used to on the farm, and none of come home at noon, five days a week. But my wife does bake cakes and cookies and part of our bread, and we roast quite a lot of meat. Our cooking bills for the past three months are before me as I write. They average 51 kilowatt hours a month. I think in canning season we have used 100 kilowatt hours a month, or maybe more.

Mrs. Lichtenwalner has kept

Mrs. Glen Wilson, Blair, Nebraska.

track of the current she uses for cooking, too.

"Our bills before we had the electric range averaged $4.81 per month," she says. "Our present bills average $9.63 per month. This means that our electric cooking only costs us $4.82. Just imagine all its advantages, ease, speed, convenience, cleanliness, comfort. coolness, and safety for $4.82. That cooks the food for a family of six, too.

"Supposing Santa Claus presented us with a few acres of wood land to be used for fuel for a stove to do the cooking we wouldn't accept this gift if we had to prepare the wood for fuel."

Results Vary in Different Localities

No two women get just the same results from any stove, but tests the country over show an average of a kilowatt hour a day per person to get the meals. You see we use less; Mrs. Lichtenwalner's use is also below the national average. It depends a good deal on the hand that runs the range.

Then there are values that transcend the practical matters of comfort and cost. From down in Ohio, a pretty little bride confides the role her range plays in making—marriage a success.

Experience Unnecessary

"One doesn't have to be an experienced cook to cook on an electric stove," she says triumphantly. "I wasn't when I got mine, but with the help of the cook book that came with it, and the clear and definite directions it had, I started on some of those oven meals. They were so delicious that I felt like an experienced housewife and cook in no time at all. My mother always said that the way to a man's heart is through his stomach—and my electric range is surely helping me to get there."

The future looks pretty black for the kitchen chimney. It is too small for Santa Claus, but then, the birds do love it. In ours "the sparrow hath found a house, and the swallow a nest for hersef where she may lay her young."

Cleaning Flower Pots

A PRACTICAL application of electricity is the use of a ⅛ h.p. motor and a bottle brush to clean flower pots.

The completed rig as illustrated conists of a ⅛ h.p. motor, a large bottle brush with a round wooden handle, a piece of ½ inch garden hose 6 inches long, 2 hose clamps. 1 piece of hardwood ¾ inch by 2 inch by 8 inches, and 1 piece of wood 2 in. by 6 in. and 2 feet long.

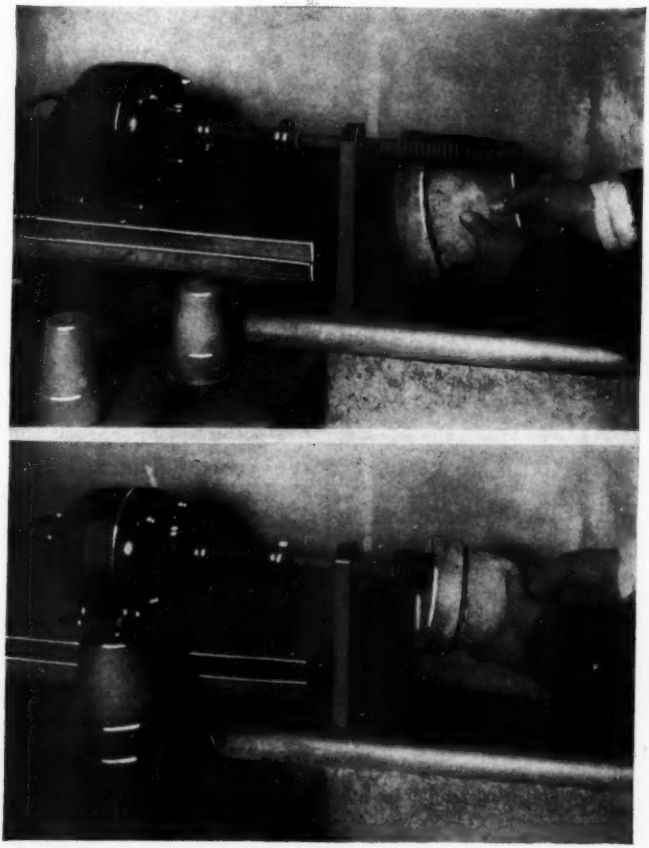
Construction Details

A hole of the same diameter as the brush handle is bored through the ¾ inch piece of wood near one end. This piece of used as a bearing for the brush. It is fastened to one end of the 2 inch by 6 inch piece with 2 screws so that the hole is in line with the motor shaft. The brush handle is put through the hole and then into the hose for a distance of about 2 or 3 inches, and fastened with the hose clamp. The other end of the hose is fastened to the motor shaft with the other hose clamp. The

motor is then fastened to the 2 inch by 6 inch base with ¼ inch lag screws at a position far enough back to place the brush as far from the bearing as desired.

Fig. 1 shows the brush being used to clean the outside of a flower pot. Fig. 2 shows the outfit in use cleaning the inside of the pot.

It has been found good practice to allow the pots to soak thoroughly before cleaning. The man who used this outfit made the following report on speed of work: 35 three inch pots were cleaned inside and outside in 5 minutes; 100 five inch pots were cleaned, inside and outside in 1 hour. He said that it is a great time and labor saver over doing the work with a hand brush.



The cleaning of flower pots is speeded up considerably by the use of the simple device illustrated above. Cleaning the outside of the flower pot is shown in Fig. 1 (top), while Fig. 2 (bottom) shows the inside operation.

Electric fans for
COW COMFORT

By GEORGE R. HARRISON

THE common electric fan is becoming more popular every year as a fly chaser in the cow barn, and many farmers who have once made use of this economical convenience, are sure to declare that never would they think of being without it. Wherever on a farm that the electric light system extends into the dairy barn, the fans can be installed merely by connecting them with the light sockets. Most of the farmers interviewed on their systems were found to be carrying the fans from the homes as needed when fly time began. Some, however, had the fans installed for permanence, as did Fred Lewis, a dairyman near Council Bluffs, Iowa, who sells milk along a route in the city.

Lewis procured the fans just as soon as it became possible for him to be supplied with current from a country "high line." On each side of his barn are the cow stanchions, and the fans are stationed to blow along the length of the barn at milking time. Then with the barn well screened at doors and windows, flies cannot enter except as the cows are admitted. But with a strong draft of air blowing, the flies are not at all bothersome, says Lewis. "They will not stay where the breeze blows," he explained.

But the fans work to another advantage, according to Lewis, who every day gives the barn a good sweeping as good dairymen should. When this is done, the fans are set in motion, and much of the dust that naturally arises from the sweeping is forced out through doors and windows. The illustration herewith shows how Lewis has his fans installed.

In Mills county of the same state, it was discovered that a good

Fred Lewis, a dairyman near Council Bluffs, Iowa, has installed electric fans in his cow barn. The fans are located so that their cooling breezes blow along the cow stanchions at milking time.

part of a whole community had adopted electric fans for cow comfort, and for human comfort at the same time. Three years ago Sam Anderson first used the fans, and mention was made of it in publicity sent out by the Agricultural College at Ames. Since then June Fickel and Ward Fickel, brothers on separate farms, Edward Wilson and Ray Plumb, had adopted fans for the barns. These men report that the heat of the barns is materially reduced because of the even distribution of temperature that arises from the cows' bodies. And then the fly nuisance is abated to a great degree, while the animals do but little switching and stamping.

Provides Real Comfort

"It is surprising how much comfort one of the fans can give," said Anderson. "I keep carrying mine right along behind the cows as I milk. With the current blowing directly on the cow at which I am seated, I can milk in comfort, no matter how hot the weather is. And the cows must understand what the source of their comfort is, for they stand at the door and bawl to get into the barn when milking time approaches. That means that it isn't necessary to drive them up from the pasture any more."

When late fall comes, Anderson, like others in his community, takes the fans back to the house for safe keeping through the winter, and to be used occasionally for driving frost from the windows during the worst cold snaps.

Destroying Bacteria by Sound

From a Report by Leslie A. Chambers and Newton Gaines

EXPERIMENTS at Texas Christian University indicate the practical possibility of an entirely new method of fighting bacteria in fluids. Heretofore we have had to rely on heat, as in canning fruits and pasteurizing milk to destroy harmful germs. But now apparatus has been devised to apply intense sound to milk or other fluids and the tests show it to be very effective in reducing the numbers of bacteria.

In the Texas trials the intense sound was produced by a nickel tube vibrated electrically by a rather complicated apparatus using ordinary 110 volt, 60 cycle current and drawing about 750 watts. After a small quantity of milk was held above the end of the nickel tube for 45 minutes it showed a decrease in bacteria count of more than 99%.

However, the investigators, Chambers and Gaines, felt that they could increase the speed and efficiency of the process by getting the milk in more direct contact with the source of the sound. So they enclosed the vibrating nickel tube in a larger glass tube leaving about ⅛ inch space for milk all around. The milk enters at the bottom, passes up through this narrow space and goes out at the top where there is a sort of reflecting cone that concentrates the sound that the milk must pass through. The laboratory apparatus would treat 100 quarts of milk an hour.

Interesting Possibilities

Milk was treated at temperatures of 40° to 50° F. and it was found that the process did not raise the temperature. Most of the tests were on raw Grade A milk containing 8,000 to 30,000 bacteria before treatment, but a few samples of pasteurized milk showing 3,000 to 5,000 organisms were treated. On the average, 80% of the bacteria were destroyed, a few samples showing complete sterilization. Even the pastuerized milk showed the same results, indicating that this method kills bacteria not affected by pasteurization.

The use of sound against bacteria has not yet been applied commercially. But for any produce where the use of heat gives undesirable results as in the manufeature of commercial alcohol, the canning of fruit juices, as well as in the handling of milk, it seems to hold very interesting possibilities.

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

Ironing Machines

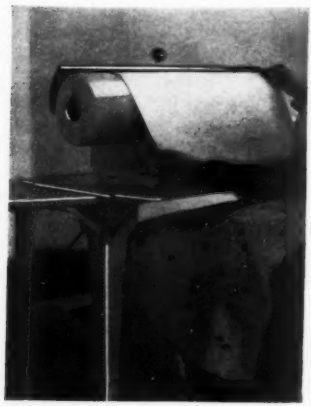
IRONINGS change like everything else. Instead of six starched white petticoats for every daughter of the house, you probably have a couple of flimsy silk slips that need only the lightest touch with an iron to get them ready to wear. Instead of acres of organdy, there are straight little dresses of rayon or cotton to do up. Long white table cloths appear for most of us less and less frequently. But sheets and towels, napkins and pillow cases bob up regularly week after week. Though there may be fewer little petticoats put on the five year old at once, there seem to be more dresses and bloomers on the line Monday morning just the same.

We can not get away from the ironing. It is still a sizable job. Just how big has been of considerable interest to folks who study our job of keeping house as a problem in arithmetic.

These folks with an eye for figures point out that when we do the ironing for a family of five, we lift a ton of iron up a foot and put it down again. Up and down it goes in six pound loads all afternoon. Then as though the lifting it up and down were not enough, in between times we push that six pound iron over twelve miles of sheets and towels and bloomers and stiff, starched shirts.

It looks even more of a job in figures than it does in the clothes basket, doesn't it? But it is big enough either way.

Doing it with an ironing machine instead of a hand iron can not change the size of the job any, but it can cut down the time and the energy it takes to do it. Ironers may have 100 square inches to iron with, about six times the area of an individual iron, and many of them will clamp down on the clothes that are sliding around on their rolls with 100 pounds of pressure, exerted not by our arms, but by the mechanism of the machine.



When both hands are busy you can start or stop the roll with your knee.

Time Saved Varies

There are a good many conflicting reports on the time that these ironers save. Mr. W. T. Ackerman of the New Hampshire Agricultural Experiment Station found that the most efficient woman on the test farms where he was studying the use of electric equipment could do a complete ironing in one-third of the time it took her to iron what she called "the necessary things" with a five pound hand iron. The operator who saved the very least time did the work in two-thirds of the time it took with a hand iron.

Across the continent at the State College of Washington, Evelyn

Roberts made a study of the efficiency of home laundries last year. She did not find so great a saving of time in the use of the machine as Mr. Ackerman did, but reports an average saving of from 10 to 20%.

Saves Energy Too

An interesting part of her report was a study of just how much energy we put into the work of ironing clothes. Through the use of some intricate apparatus for measuring the changes that go on in the cells of our bodies while we are going about various activities, scientists can find out how much energy it takes us to do this work or that. Miss Roberts used this metabolism apparatus, as it is called, to measure the effort of ironing in various ways. These are the results:

"(1) The use of the ironer while sitting involves the least expenditure of energy (40% above resting).

"(2) The use of the electric iron while sitting consumes more energy (75% above resting).

"(3) Ironing while standing with either electric or sad irons consumes about the same amount (95 and 105% respectively above resting)."

"So," Miss Roberts concludes, "the ironer saves 15 to 20% in time and 50% of the energy expended."

If time and energy are important, the cost of the machine may be well justified in many family budgets.

The ironer with a curved shoe and a revolving roll that carries the clothes past the iron is made in several different models. One will fit on the wringer of the electric washer and run from the motor of the washing machine. This ironer is cheaper than the others, but against its cost must be weighed the work of taking it on and off each time the washer is used, and the fact that it is hung so high that the operator must stand, or must sit on a high stool to use it. The next in price is a portable ironer with a shelf-like base. It is complete in itself and can be used on any table or stand. Then come the ironers on roller skates—these same table models set on slender, collapsible legs with big casters so they can be moved easily from place to place. And last of all, an ironer in a cabinet of its own, a cabinet that opens up to give generous shelf room for ironed clothes and closes to make a porcelain topped table for anywhere in the kitchen.

The press type ironer.

A New Type Ironer

This last year has seen a new kind of ironing machine on the market, the flat or press type ironer. These ironers have a wide, long shoe that fits down over an ironing board just the same, and irons out every thing under it at once.

So far as I know no research work with this new ironer has been reported, but I talked the other day with a young woman who has used one frequently. She says that she can iron a man's shirt in from three to five minutes and finds its operation simple and satisfactory.

Not knowing the shirt nor the man who was to wear it, I can only report her opinion to you.

Buying an ironing machine requires careful shopping. Because

This ironer is mounted on a sturdy table of its own.

of her detailed study of ironers, Miss Roberts suggestions for selecting one seem to me of considerable value.

"In selecting an ironer," she points out, "several facts should be considered; the shoe, speed of roll, controls, safety lever and mounting. The heated area of the ironer, known as the shoe, may be of aluminum or iron, the former requiring slightly less electricity to heat than the latter. A shoe length of 26 to 30 inches is the best size for home use. A speed of about ten feet per minute makes it easy for the operator to keep the roll fairly well covered with articles.

"Two switches are desirable, one at the height of the roll for hand control, and the other a knee or foot control. The double control type enables the operator to use both hands freely in feeding the machine. A good ironer should also be supplied with a safety lever which, when touched, immediately separates the shoe and roll.

"These machines may be mounted on a board to make them portable, on a heavy pedestal base, or on a table. Some may be attached to the wringer shaft of the washing machine, but this necessitates changing wringer and ironer for each washing. Portable ironers are usually quite heavy, weighing 25 to 60 pounds. The cabinet type with enameled table surface is perhaps the most useful, because it can be used as an accessory kitchen table. There should be some provision that the roll be not exposed to dust and dirt."

On the New Refrigerators

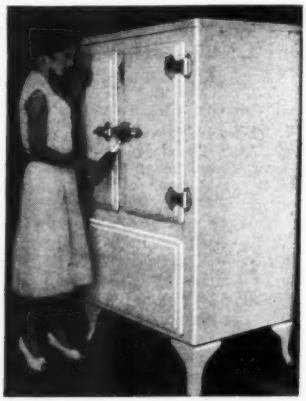
I HAVE been going about visiting refrigerators these last few days. You have no idea, unless you, too, have been making a series of calls like that, what a lot of new things manufacturers can do to refrigerators when they bring out new models.

Several of them began with the shelves. They changed the round wire in the earlier racks to flat ribbons so dishes will slide over them easily and narrow bottles won't be half so tempted to upset.

In one box the shelves slide out like a drawer. A safety catch keeps them from pulling way out, and supports at the side hold them level. There is a little bar across the edges so you can't tip things off.

A Desirable Feature

Some manufacturers have modified one of the shelves in their boxes to take care of extra tall bottles. In one the shelf was cut out around the bottles; in another it slid back like a roll top desk when the bottles were put in, and pulled out like any ordinary shelf to hold butter and eggs again after the bottles came out. The third is called the flip-top shelf. Part of



You can open a bottle this way.

it turns back on a hinge to let the necks of the bottles through.

If your family is fond of ginger ale these special provisions for bottles will interest you.

There seems to have been a concerted effort to get trays that disgorge one ice cube at a time, too. The manufacturers of one refrigerator make quite a point of the fact that you can push on the bottom of the tray to get out one cube or a dozen without delay. More than one refrigerator has a new rubber tray as part of its standard equipment. Twisting these a bit dislodges the cubes easily.

Night prowlers will be glad to know that some of the new refrigerators have electric lights inside. The light comes on when you open the door, showing you at a glance what the resources of the box are. You can't go off and leave it on because closing the door turns it off again.

One refrigerator has a wire basket for fruit that slides along grooves under one of the top shelves. Another has a narrow wire rack for eggs suspended under a shelf. It does not take any shelf room; it is a handy place to keep the eggs; and it insures them against breakage.

At the next store I went into, I found a refrigerator with a water cooler alongside the chilling unit. The salesman told me that it would hold thirty-four drinks. You pour the water into a little funnel near the top and draw it off through an honest to goodness faucet at the bottom.

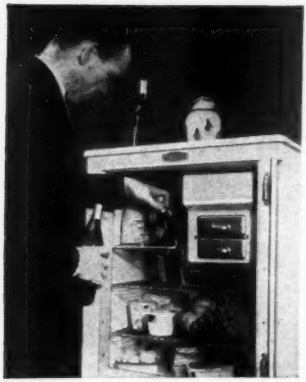
These shelves are made of flat ribbons of metal so dishes will slide over them easily.

This refrigerator has a light inside, a special water cooler, and a cold storage drawer there at the left.

Two refrigerators have a cold storage drawer for freezing an extra supply of ice. It will freeze a ten-pound cake, they tell me, or store the new frozen foods we hear so much about, or your own extra ice cubes and dessert made up beforehand perhaps because you are having company for dinner. This space is not so cold as that enclosed by the chilling unit, but it is below freezing.

Automatic Regulation

One refrigerator I saw keeps different parts of the box at different temperatures. The food chamber is always between 40° and 50°. There is one temperature in one part of the chilling unit, and another in the lowest sleeve for the trays. Here you can freeze ice cubes in an hour and twenty minutes. The cold drawer is held at still a fourth temperature. It sounds complicated, but we do not have to bother about it for the machine does all this regulating by itself.



The flip-top shelf for tall bottles.

Just as I was leaving this refrigerator the salesman asked me if we liked pop at our house.

"Can't bear it," I answered, "but we do like grape juice and ginger ale."

I thought he was going to point out still another trick shelf that would let the tallest bottle I could buy, but he had something new.

"Just look at this bottle opener right here on the catch the latch fits into. Convenient, isn't it?"

The last refrigerator I saw was finished off by a man who helps his wife about the house, I know. It has a gadget you can press with your foot to open the door. Only a man who has approached a refrigerator with a bottle of milk in one hand, a dish of butter and three boiled eggs in the other would ever have thought of that, I am sure.

• • •

There Are Styles in Jars

PERHAPS you have known about them all the time, but wide mouthed glass jars are new to me. I found them in an exhibit of canned fruits and meats held in Chicago last winter. They come, I have since learned, in three sizes, pints, quarts and two quarts, and with either metal or glass tops.

You can see at once what a tremendous advantage this wide mouth gives you in packing a jar. You can put in peaches or tomatoes without crushing them too tightly in the process; you can pack in large pieces of meat and chicken. Then, and this is just as important as getting them in, you can get them all out again without spoiling their shape. I do not believe that I am ever going to want to can corn on the cob, but some folks do. These jars would be perfect for that.

As soon as I saw the cans, I wanted to take a picture of them, and I asked Mr. Seward Price, the manufacturer's representative who had designed the display, if he would let me do it.

"Why of course, Mrs. Meredith," he said courteously, "but just what do you want the picture for? Everyone knows about glass jars. At least we've tried to have them," he added with an engaging smile.

"They know about glass jars, of course," I answered emphatically, "but they don't know about wide mouthed jars like these,—and as for the square ones," I picked

up a squatty pint jar of peas to emphasize my words,—"I could almost count the square jars I've seen in my life. There must be lots of other women who do not know about the changing styles in jars."

"Is that really so?" he asked in surprise. "In some parts of the country we sell the square jars almost exclusively."

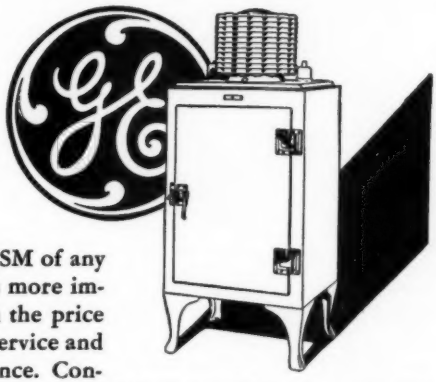
They are nice to stack away on the shelves in the fruit cellar and they lend themselves very well to exhibition packing. In fact the

(Continued on page 29)

Investigate the **G-E**

4-YEAR SERVICE PLAN

before you buy your refrigerator



THE MECHANISM of any refrigerator is more important to you than the price tag. When it fails, service and repair bills commence. Continuous service charges on a "cheap" refrigerator can not only eat up the very savings modern refrigeration makes possible—but seriously inconvenience the rural home.

General Electric's 4-Year Service Plan protects every new buyer against any failure of the famous Monitor Top mechanism for *four full years.* The G-E mechanism requires no attention . . . not even oiling. Every moving part is completely sealed-in-steel.

$10 down will deliver a full sized General Electric to your home. Its savings start at once and continue through the years. And, it's as easy to buy as the cheapest! General Electric Co., Electric Refrigeration Dept., Section CZ6, Cleveland, Ohio.

GENERAL ELECTRIC

ALL-STEEL REFRIGERATOR

Questions and Answers

Conducted by H. J. GALLAGHER
Agricultural Engineering Dept.
Michigan State College

Question: "Will you kindly tell *me how to wire a 3-way switch? "Hoping you will continue to serve me as you have been serving me in the past."*

Leo Caron,
Route 2, Box 43,
Lewiston, Maine.

Answer: To open or close an electric circuit from two different places two 3-way switches are used. Each switch has three separate terminals or posts provided with screws for attaching wires, a fourth terminal having no post for wire connection is connected inside the switch to one of the three screw posts; this connection can be identified by a groove on the back of the switch; mark the screw post to which the fourth terminal is connected on each switch.

Place the two switches where they belong and from the marked post on switch No. 1 connect a wire to either one of the feed wires of the circuit, from the other feed wire connect a wire to one of the terminals of a lamp, from the other lamp terminal connect a wire to the marked post of switch No. 2. Connect switches No. 1 and No. 2 by two separate wires fastened to the two remaining posts of each switch.

A motor or appliance is connected in a 3-way circuit in the same manner described for the lamp.

• • •

Question: *"I am writing in regard to a burglar alarm, that I have installed. It is a D. C. system operating on a* 100 *amp. storage battery, with a* 4 *ohm D. C. relay. It is a closed circuit system, that has about* 1,500 *ft. at No.* 16. *Rubber covered wire, a Westinghouse charger, 2 amp. are used to charge the battery. The bell is an ordinary doorbell, operating on* 60 *volts. A switch in the battery circuit is used to disconnect the system in the day time. (Enclosed is a sketch.) Now I would like some information on whether this system can be changed over to* 110 *volt A. C. operation, and what the changes in it would have to be; also the approximate cost of such a change, whether this change would improve the system (that is which would be the most efficient and the most economical).*

Stenen Soos,
Route 6, Box 98,
Akron, Ohio.

Answer: Replace the 6 volt battery with a transformer to reduce 110 volts to 12 volts, replace the D. C. relay with a 6 volt A. C. relay and connect the doorbell with 2 dry cell batteries so that the contacts are closed by the relay armature. This is a more efficient system than the one you now have as the alarm operates whenever service is interrupted.

• • •

Question: *"How can a dado be set up on a rip saw?"*

S. D. Oldroyd,
Center Street,
Windsor, Conn.

Answer: The most simple method of making a dado is to use two saws on the shaft at one time. This only gives a groove the width of the two saws, a dado saw can also be used with one rip raw, dado blades of different widths would have to be used for different width grooves.

A very common method is to insert a wedge between two rip

saws that will separate one side of the saw to give the desired width groove and bring the teeth on the other side of the saw together, the wedge must be long enough to rotate on the shaft.

Wobble saws can be purchased to fit any shaft and cut different width grooves.

• • •

Question: *"We have a battery light plant on our farm. It has 16 batteries and is 32 volts. Now we would like to get an incubator to use on this plant, but know not where to get it. Could you please give me the address of a company or send me a bulletin on these incubators; the amount of current required to run an incubator; the egg capacity of this kind of an incubator? Where can I get them, and what would be the price of such an incubator? I thank you in advance very kindly for this information.*

"P.S. This plant does not run all the time. Would the current or temp. vary?"

Jewel A. Hurve,
Lemonox, South Dakota.

Answer: Any company manufacturing electric incubators could very easily equip their heating device with 32 volt heaters. The size of the incubator would be limited to the capacity of the 32 volt generator, on the basis of ½ watt per egg. A 750 watt generator running ten hours per day would care for approximately 600 eggs; this would be about the largest size incubator recommended for a 750 watt generator as some current must be reserved for lights and other uses. Generators of greater capacity can care for correspondingly larger incubators.

Give Him Rope Enough

A middle-aged but rich widow, who had a very disagreeable temper, complained to her son-in-law that she was annoyed by the attention of a certain man.

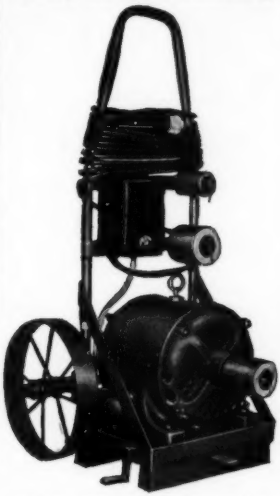
"How shall I get rid of him?" she asked.

"Marry him," replied the son-in-law. "I'd see him hanged first."

"Just marry him, and it won't be long before he'll hang himself."

—*Rotterdam Dambad.*

"They Keep a-Running"



5 Horse Power Century Portable Power Unit

Portable—
Use It Anywhere

This Portable Power Unit has been specially developed for use wherever motor power can be employed on the farm . . . Its portability permits quick, easy wheeling from one job to another. It is so constructed that when placed in the operating position it rests firmly on a solid foundation — giving all the advantages of a permanent installation . . . Furnished either with or without truck, single or 3-phase motors . . . 3, 5 and 7½ horse power are the popular sizes.

CENTURY ELECTRIC CO.
1806 Pine St. St. Louis, Mo.

40 U.S. and Canadian stock points and more than 75 outside thereof

Century
MOTORS

ON THE AIR

Conducted by
JEROME J. HENRY

Increase in Talks by U. S. Leaders

TALKS by high government officials and political leaders have increased three times since the beginning of the year, radio records indicate. More speeches of a governmental nature have been made over NBC networks during the past few months than in any similar period in other years. Indications are that the talks will continue to increase and will reach a high point just previous to the presidential election this fall.

Letters from radio fans also reveal that there is an increasing amount of interest in these talks. Some senators have received 5,000 letters in response to a single broadcast.

To bring to the nation news of the activities of both the Republican and Democratic national conventions to begin in Chicago on June 14 and June 27, respectively, the talks, procedure, and description of the spectacle will be covered and sent over radio stations all over the country.

It isn't Christmas, but Myrt and Marge have "socks full" of fan mail. All they want is several carloads of letters from their listeners. Their usual entertainment may be heard over Columbia Broadcasting System associated stations.

• • •

Watch Eclipse While Hearing It Described

MANY events are broadcast so people who cannot witness them first hand may hear a word picture. But the unique possibility of seeing a phenomenon while hearing it described will be offered when the total eclipse of the sun which is due on August 31 of this year will be described to radio listeners in the eclipse zone and others far removed from it.

A group of scientists, gathered at the telescope set in a Maine village, will describe the eclipse over NBC networks.

This will be the second attempt to broadcast an eclipse. In 1925, in cooperation with the U. S. Coast Guard a 100 watt broadcasting station was carried out to sea, and from a point at the exact center of totality, 300 miles from shore, a series of broadcasts was put on the air.

• • •

Explains Rural Free Delivery

SOME direct selling methods farm folks may employ to increase profits were outlined in a recent radio talk by J. C. Harraman, United States Director of Parcel Post.

The parcel post service was established primarily to help farmers send and receive small packages. Direct selling of eggs and poultry

was suggested by Mr. Harraman who stated that the parcel post service enables poultrymen to place fresh supplies of these products in the hands of the consumer in a very brief amount of time.

"There are a great many plans and successful methods used in the direct marketing of eggs," he pointed out; "one of the best is to list the prominent residents of a nearby town. Send these people an attractive letter telling about the quality of the eggs, and solicit their orders."

Careful attention must always be given to quality, since direct selling from the farm depends, to a great extent, upon the superiority of the products in quality and freshness, Harraman said.

• • •

Seconds and Languages Keep Announcers in Trim

WHY radio announcers sometimes appear erratic may be explained by the predicament which caught up with Charley Lyon during one of the Joseph Koestner programs. A minute and a half had been designated for the closing announcement. The moment came, but the orchestra

The youthful maestro of CBS, Harry Sosnick, directs his orchestra in frequent broadcasts of increasing popularity.

DORWARD-

Red Jacket

WATER SYSTEMS

200 to 10,700 Gallons per Hour

For every water need there is a Dorward-Red Jacket System that supplies the water at lowest cost for power. Perfect straight line motion without the use of fulcrums, crossheads or walking beams. No oscillating parts, hence less friction, less vibration. Compact, semi-steel castings, hardened steel bearings, perfectly machined, all moving parts enclosed and running in oil. Lasting.

Write for Booklet No. 11

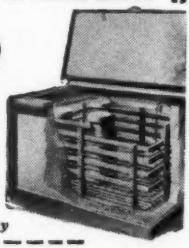
RED JACKET MFG. CO.
DAVENPORT, IOWA

Lowest Price in Milk-Cooling History

Put an ESCO in your Milk House now . . . at the new low price . . . hold your market and get top prices right on through the summer months.

ESCO

The Electric Milk Cooler



cools milk to below 50 degrees and keeps it cold until shipped.

Mail coupon today

ESCO CABINET CO. 6EF32
West Chester, Pa.

I make ..... cans of milk daily.
Send full particulars on:

( ) ESCO Milk Coolers
( ) ESCO Water Heaters
( ) ESCO Dairy Utensil Sterilizers

Name .....
Address .....
P. O. ..... State .....

played on—it played overtime, using up 35 precious seconds.

With 55 seconds left to make his closing announcement, Lyon began reading. He managed to finish on the dot, but was almost a nervous wreck. His words came from eight languages. Perhaps it would be interesting to try them. Here are some of them:

Los Toros, Traumerei, Lubowski, Tschaikowsky, Antonin Dvorak, Gounod, Mon Couer a ta Voix, Saint Saens, and Huldigungsmarsch.

• • •

Studio Chatter

DO you happen to believe a microphone isn't very sensitive? One of them was used a few weeks ago to send the heart beats of a young lady thundering over the loudspeakers in homes all over the United States. Which reminds us of two other stunts in broadcasting. CBS sent a program over the network from a running train, and NBC was successful in broadcasting from three mail planes flying between the East and West coasts.

Ed East and Ralph Dumke, Sisters of the Skillet. Two young Hoosiers who, by giving nonsensical advice to American homemakers, became one of radio's outstanding comedy teams.

"Steaks," these four star National League baseball players cried in unison when asked about their favorite diet. They were interviewed recently in the Farm and Home Hour. Left to right: Roger Hornsby, Gabby Hartnett, Helen Stevens Fishers, the interviewer; Guy Bush, and Charley Root, all star Cub players.

Those tap dances you hear come out of a pillow that's tapped briskly with some paddles resembling a shingle, and a laundry tub full of water can sound like Niagara, while the barking dogs, mooing cows, and farmer loading hogs are often nothing more nor less than the voice of Tom Corwin. Tom imitates them all. Once asked to make a noise like a groundhog, he fooled everyone by doing it.

The Pickard family goes on a homeward trek to Tennessee every summer to hunt up "new" old songs in the hills, and Ma Pickard likes to do her canning down there.

Ely Culbertson, the famous bridge expert who tells radio listeners about the fine points of the game, was born in Russia but believes there's a great future for the United States. He believes that prosperity is just around the second corner.

A huge polar bear rug adorns the living room floor in Lee Sims's

home, but he says that when he finds some spare time, he's going to lie on that rug and dream while his lovely wife—Ilomay Bailey to those who listen to their programs—sings to him.

Curiosity almost proved disastrous when Browning Mummery, tenor, picked up a guard used by trap drummers. The instrument made so much noise when he picked it up that he was afraid to set it down until the half hour broadcast was completed.

The eight Lanin brothers are all musicians and have an agreement not to encroach on each other's territory, nor hijack each other's accounts.

If you want to be a good conversationalist, avoid the dull "W's" and dangerous "D's" says Ethel Cotton, who is heard through KPO, San Francisco. The first includes endless comments on the weather, and the latter on dress, diet, domestics, disease, and depression.

Phil Cook, one man army of voices, sits on a high stool while broadcasting.

Styles in Jars

(*Continued from page 22*)

only ones I had ever seen had been in 4H Club exhibits where some clever, patient little fingers had laid row on row of string beans in herring bone designs or packed a jar of pickled beets so exactly of a size that they looked as though they had been turned out by a mold.

"If you want a picture of that wide mouthed jar and the square jars, I will get it for you," Mr. Price offered generously, and he added to them those littlest jars of all that are so handy for jams and conserves of every description. I have been using these for years myself, but I know that they are not common, for when I want to add to my stock, I generally have to shop all over town to find a store that is carrying them this year, so perhaps you never saw them either.

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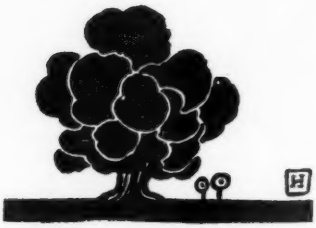


Under The CHESTNUT TREE

Why Not?

She (discussing new neighbors): "I can't make them out. They have no car, no piano, no radio. She has no furs, no jewelry, no—"

He (interrupting): "Then they probably have some money."

Rural Reminiscence

I remember country springs
With budding life a-flutter,
A swallow's flight, a fragrant night,
And garlic in the butter!

—G. C. R.

Ash Disposal

"Those are my brother's ashes in the jar on the mantel."

"So the poor fellow has passed to the great beyond?"

"Heck, no! He's just too lazy to find an ash tray."

—*Utah Humbug.*

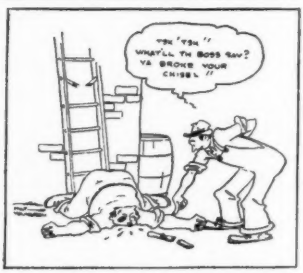
Snake Didn't Play Fair

A few years ago Italian laborers were imported to assist in building Flagler's Florida East Coast railroad. They were told that, although there were plenty of snakes among the palmetto scrub, those reptiles always gave warning with their rattles before striking.

One day when a laborer, who had mastered very little parlor English, was eating his lunch a large rattler came up close to him and struck, without warning.

Leaping to his feet the swarthy Sicilian yelled out:

"Son o' gunna! No ringa da bell!"



Courtesy National Safety Council

Poor Papa!

Proud Papa: "Don't you think it's about time the baby learned to say 'Papa'?"

Mother: "Oh, no. I hadn't intended telling him who you are until he becomes a little stronger."

"A Los Angeles woman gets a divorce because her husband called her 'a load of hay.'"

"That's too ticklish a thing to call any one."—B'nai B'rith Messenger.

"Babies are angels whose wings grow shorter as their legs become longer."

In Eskimo Land

"What happened to Noogah's igloo? It's melted to the ground."

"Yes, he gave a house-warming last night."

He Started One

A college professor and his wife entertained at dinner a few weeks ago. In the midst of the gayety at the table a child's voice was heard coming from the floor above.

"Mother!"

"What is it, Archie?" she asked.

"There's only clean towels in the bathroom. Shall I start one?"
—Fyr-Fyter.

A medical man ordered his patient whiskey and impressed upon him that he must take it with hot water, otherwise it would do him more harm than good.

"How am I to get the hot water? My wife is a prohibitionist, and if she knows it's for whiskey, she won't let me have it."

"Oh, you can tell her you want it for shaving," said the M. D.

The next day the bright physician called and when the wife opened the door he inquired how the patient was.

"I'm worried, Doctor. I'm afraid he's gone mad, because he wants to shave every ten minutes."

The Answer to WHO MAKES IT

	See Page
Electric Ranges	
Edison G-E Appliance Co.	2
Malleable Iron Range Co.	5
Refrigerators	
General Electric Company	23
Frigidaire Corporation	6
Milk Cooling Equipment	
Esco Cabinet Company	27
General Electric Company	23
Frigidaire Corporation	6
Chore Motors	
Century Electric Company	25
Stationary Spray Pumps	
Myers & Bro. Co., F. E.	3
Paint & Insecticide Sprayers	
Atco Products Corp.	33
Electric Incubators & Brooders	
Oakes Manufacturing Co.	
Electric Poultry Supplies	
Oakes Manufacturing Co.	
Insect Traps	
Folmer-Chapin Corp.	

	See Page
Water Systems	
Myers & Bro. Co., F. E.	3
Red Jacket Mfg. Co.	27
Ft. Wayne Eng. & Mfg. Co.	32
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Electric Cookers	
Excel Electric Co.	29

The manufacturers in the above list are all reputable and the appliances they offer are known to be practical for farm use. When needing further data write directly to the manufacturers making the equipment in which you are interested.

For information about devices not included in the above list and the names of reliable manufacturers—use this handy coupon.

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THE MOTH AND THE FLAME

By L. S. CAPLE

SINCE 1926 the Rural Business Committee of the Empire State Gas & Electric Association has been cooperating with the New York State Experiment Station at Geneva, in studying the effect of electrically lighted traps on orchard insect control.

The first two years considerable work was done in the laboratory at the Experiment Station and with a few lights in the orchard to determine what size or what color light would produce the best results. This work indicated that a 75 watt clear glass lamp in a trap hung about six to eight feet from the ground was the most effective.

The trap used in the experiment consisted of a round galvanized iron pan with two metal bails over the top and crossing about ten inches above the top of the pan. A hook was fastened into the two bails so that the pan could be hung from the lower branches of the tree. The socket with the lamp was fastened onto the lower side of the bails, bringing the lower part of the lamp about four inches above the water.

An orchard belonging to Collamer Brothers, Hilton, New York, was placed at the disposal of the Experiment Station for the trials. Investigation showed that the bud moth and fruit tree leaf roller in this orchard were abundant during 1928. The fruit tree leaf roller had been more or less abundant for many years, but the bud moth did not attract serious attention until 1924. Acting under Prof. P. J. Parrott of the Experiment Station, Mr. D. L. Collins had full charge of the experiment from its beginning.

During 1928 thirty-four traps were installed in the orchard and approximately sixty thousand bud moths and forty thousand fruit tree leaf rollers were captured.

In 1929 a four acre block of this ground was lighted; this block included trees as follows: 32 Pound Sweets, 18 Hubbardston, 31 Baldwin, and 24 Twenty Ounce. With the exception of a few trees where replacements had been made, all trees were about fifty-three years old. Another section of the orchard with trees of the same age and kind, was used as a check area.

The wiring was quite a problem but finally a No. 10 duplex wire was run through insulators from tree to tree in the upper branches and drops made to a trap in each tree, making a total of 105 traps. The lights were operated every night, from June 15 to August 26. They were turned on about eight

$75

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o'clock every evening and off again about five in the morning.

During the day time each trap was examined and an accurate count made of each moth found. Each tree was numbered so that the counts for each could be kept separate. The insects were then removed and destroyed or saved for further examination.

At various times during the season the trees were dusted with 3% nicotine lime which killed or crippled the insects. They were then shaken down upon a large canvass, identified and counted. These dustings indicated from 2 to 7 times as many moths present in the unlighted area as in the lighted area.

Tree Carefully Examined

The leaves of trees in both sections were systematically examined for injury. The method pursued was to examine 100 leaf clusters on 7 or 8 trees of the same variety, each time counts were made during the season. Injury ranged from 8.2 to 26.4 percent greater in the unlighted than in the lighted section.

Examinations in which individual leaves rather than the leaf clusters were recorded were made during the last week in August. At that time 100 leaves were taken at random from each of 52 trees, 26 in each section. Again the injury in the unlighted section was far more than that in the lighted section.

In the summer of 1930 the extent of the experiment was widened considerably. It was felt that there might be other and more economical ways of distributing the traps in the orchard without lessening the number of insects captured. Two more sections of orchard of approximately the same size were used, one block with one trap to about every 4 trees, and in the other, one trap about every 9 trees.

Careful Examinations Made

By more careful examination of the insect's behavior during 1930 it was found that when the temperature in the orchard was 60 or below or the wind blew, captures on those nights would be small.

Many of the moths captured during the season were examined for sex. Of 2,070 bud moths taken from traps, 846 or 40.8 percent were females. Of the 846 females, 801 or 95 percent were gravid (that is, had not yet laid their eggs). Thus, of the total number examined approximately 38.6 percent were gravid females. 1,051 fruit tree leaf rollers were examined for sex and 20.6 percent were females. 97 percent or approximately 20.5 percent of the total were gravid females. These percentages were obtained from examinations of moths taken on various nights during the season.

In the fall of 1930 a count was made of the injury to the fruit. In the section that had one light to each tree and had been lighted for two years, the injury was 5.34 percent from bud moths, 1.3 percent

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from codling moth, and 1.52 percent from fruit tree leaf roller, or a total injury of 8.16 percent. In the unlighted section the injury was 21.8 percent from bud moths, 3.94 percent from codling moth, and 3.24 percent from fruit tree leaf roller, or a total of 28.98 percent. For the sections having 1 trap to every 4 trees and 1 trap to every 9 trees, the injury as shown by leaf and fruit counts was the same as that of the checks.

While the catches of bud moths and fruit tree leaf rollers were large, only a comparatively small number of codling moths were captured. This has not been satisfactorily explained but the theory has been advanced that an illuminated orchard is not conducive to egg laying or, in other words, may not be suitable for the reproduction of codling moths. Mr. Collins is making a special effort to find the answer to this phase of the experiment.

In 1930 and 1931 a new type of trap was tried out. In this device the lamp is surrounded by wires charged with a high voltage current furnished by a small transformer located under the top cover. The insects flying to the light and coming in contact with the charged wires are immediately electrocuted. This trap is more effective than the water pan trap as none of the insects escape.

Results Gratifying

In a letter from Collamer Brothers dated February 20, 1930, they say, "We watched with interest the thousands of moths that were being taken each night. The question then arose, would the fruit show the effect of the experiment after just one period of lighting? Our question was answered at packing time. When the fruit from the lighted area was brought in, the packers wanted to know where such fruit came from for it was by far the cleanest and most perfect fruit we packed that fall. We think it remarkable to get such results in so short a time."

Bulletin No. 583, dated February, 1930, of the State Experiment Station, Geneva, New York, gives a good outline of the 1929 data obtained. There is also a progress report on the 1930 work entitled, "Responses to light of the Bud Moth and Leaf Roller." Very shortly a cumulative report on the past three years' work should be out.

The enormous numbers of moths caught in the traps and the great reduction of insect population within the lighted section are extremely significant. We are planning to continue this experiment for several years and further study the effects of light traps as an economic insect pest control measure.

If you have not already sent for bulletin No. 583 and its supplement, do so now. Then install a few electrically lighted traps in your orchard and prove to yourself that they will reduce your insect population and improve the fruit.

Mistaken Identity

"What caused you to beat that guy up?"

"He insulted my girl."

"Why, all he said was that she danced like a zephyr."

"My mistake! I thought he said 'heifer'."

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COVER TITLE CONTEST

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First Prize for April—$25.00

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The following have been awarded $5.00 cash prizes for their April titles:

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O, boy! Electricity's simply swell."
Billy Bartlett,
Barron, Wis.

"Now washing his hands is just like play,
Since water is pumped the electrical way."
Clyda Bernice Conrad,
R. 4, St. Joseph, Mo.

"Cleanliness here is easy indeed, With electricity supplying the water we need."
Mrs. E. Hesselschmerdt,
R. 4, Urbana, Ill.

"Faucet turned, he laughs in glee, No more carrying water for me."
Genevieve Cothran,
R. 3, Gasport, N. Y.

April Issue
Front Cover

Rules for June Contest

There will be one first prize of $25.00 and five second prizes of $5.00 each. In case of a tie each winning contestant will receive the full cash prize to which he or she is entitled.

All members of the farm family to whom this magazine was sent are eligible. Each contestant may submit only one title.

Send your title on the coupon below or on a plain sheet of paper making out a similar form.

Question "A" must be answered correctly.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 24 West 40th Street, New York, before July 1st.

Winning names and titles will be announced in the August issue.

My title for the June Front Cover Picture of ELECTRICITY ON THE FARM is.....

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(a) Have you a Hot Water Heater? Yes ☐ No ☐ If yes, check which type.

☐ Boiler connected to Coal Stove ☐ Gas Heat

☐ Oil Heat ☐ Electric Heat

My name is.....R. F. D.....

Post Office..... County..... State.....

6-32

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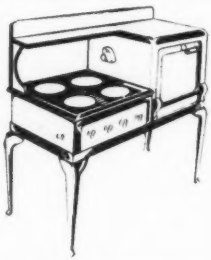

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